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József Sákovics and Jakub Steiner on The Theory of Planning a Successful Economic Recovery

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Focus paper

**School of
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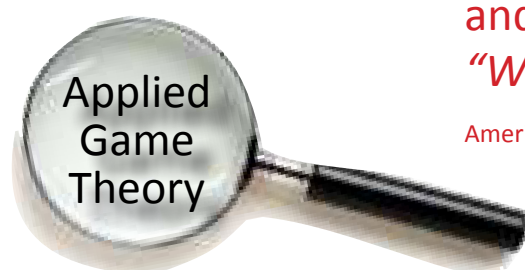
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The Theory of Planning a Successful Economic Recovery

Based on the research of József Sákovics
and Jakub Steiner

“Who Matters in Coordination Problems?”

American Economic Review. Dec 2012, Vol. 102 Issue 7, 3439-3461.



Imagine a policy maker trying to engineer an economic recovery from a crisis. Since his funds are limited, he must decide how best to allocate them to generate the highest likelihood of recovery. To decide he needs to answer several questions. For example, should he subsidize corporations rather than workers or vice versa? Should one type of industry receive more funds than others? Should the policy maker put greater focus on encouraging new investment than on supporting existing investments?

Key insights into such questions can be developed using the framework of *coordination games*. Coordination problems are situations where agents want to do what other agents are doing, but they have no way to agree on the common course of action. They can be modelled using Game Theory. Interactions among several agents are referred to as a game. It becomes a coordination game when multiple stable outcomes — or equilibria — exist and, in principle, the agents could coordinate equally well on any of them. For example, depositors play a coordination game when deciding whether or not to withdraw their money from a bank. So do traders when they each decide individually whether or not to short a currency.

The challenge for a policy maker facing an economic crisis is to identify the agents in the game with the most influence on the process of recovery, who should be the key recipients of the bulk of the available funds. A poor choice could result in a coordination failure — an equilibrium that's individually rational but damaging overall, such as a bank run, or no one investing in a profitable common project, like standardisation.

Until recently, little guidance has been available on how to choose the most appropriate agents since we have lacked a good method for studying this question. Sákovics and Steiner have found a simple technical way of doing it precisely.

US policy makers
faced such questions
in 2009 when they
developed the
stimulus bill intended
to put the economy
back on course.



“In the canonical case of investment subsidization we find that ideal candidates for the subsidy need to satisfy only two criteria: (i) their investment has a relatively large direct impact on the incentives of others, but (ii) they are relatively insensitive to the investment of others.” More pithily put, you subsidise the agents with high spillover to the incentives of other agents but who don’t care too much about the activity of the others.

The first criterion is fairly obvious. The second is much less so. Why should one rely on largely independent agents to lead a team effort to avoid disaster? The authors explain

“If you subsidise the insensitive agents, it follows that those who are not subsidised are relatively sensitive. So they’ll be more stimulated by the increased economic activity of the subsidized agents, maximising the indirect effect of the subsidies.”



To illustrate their result, Steiner and Sákovics cite the way in which shopping mall developers set their rental fees. Typically the department stores that anchor a mall receive large discounts on their rents. *“Anchor shops bring in loyal customers who end up shopping at other stores as well; thus their decisions have a large impact on the decisions of others,”* they write. *“At the same time their sales are relatively unaffected by the custom of shoppers derived from other stores — as shown by the similarity of their sales per square feet between regional and super-regional malls.”*

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This model is based on two key concepts:

- ✓ ***The risk dominance criterion***
- ✓ ***The belief constraint***

As is often the case with cutting edge research, Sákovics and Steiner’s approach came about serendipitously. *“We were playing around with a set of models without anything practical in mind,”* they recall, *“when we hit upon a novel and powerful solution method”*. Two key concepts underlie their model. The risk dominance criterion, which is an old and important concept, showing that in times of uncertainty, mutual worries can become self-fulfilling. For example, when faced with the risk of a bank run all agents might coordinate on withdrawing their money from an otherwise solvent bank, thereby damaging the bank’s chances of surviving the run. The other concept — the belief constraint — is their own discovery. It recognizes that when you ask the pivotal agents (who are indifferent between the two actions) of groups of people with differing incentives about how optimistic they are the sum of optimism across the groups stays constant, no matter how the incentives have changed. This ‘Law of Belief Conservation’ has proven to be extremely useful in deriving the optimal policy.

Their model provides guidance in situations well beyond mall rentals. Financial regulation is one such arena. Take, for example, a country in such financial distress that it has frozen all bank deposits but then decides to allow some depositors to withdraw their money to maintain liquidity. *“Our model allows us to track how a discriminatory withdrawal policy affects the probability of a run, thus informing the policy discussion,”* they write.

Similarly, the model can play a role in a corporation’s introduction of new technology, such as videoconferencing. Typically, organizations seed a group of employees to adopt the technology first, in hopes that they will highlight any technical problems and help to convince co-workers to accept the technology. *“Our model can easily be adapted to find the optimal seeding policy,”* the pair writes. And, in the example of economic crisis recovery, the model gives guidance on whom to subsidize to stimulate the economy.